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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FREDMAN, JEFFREY NORMAN	
ART UNIT	**PAPER NUMBER**
1637	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,476	MAY ET AL.	
	Examiner	Art Unit	
	Jeffrey Fredman	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-17 and 29-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-17 and 29-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 33-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 33-41 are vague and indefinite because of a series of antecedent basis problems. For example, in claim 33 concludes "wherein the duplex DNA is a plasmid ...". Which duplex DNA is a plasmid, is it the duplex DNA comprising the target sequence or the oligonucleotide which also comprises a DNA duplex.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 13-17 and 29-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al (EP 718,404 A2, June 1996) in view of Baszcynski et al (U.S. 6,528,700).

Yamashita teaches a composition comprising:

a) a duplex DNA comprising the lacZ (see page 4, example 1 where LacZ is used and page 5, table I, the PUC-Mut solution).

b) an oligonucleotide capable of introducing a site specific predetermined change in the LacZ target sequence (see page 5, table I, here the dR1 solution)

c) a cell free extract (see page 5, table I, here the RecA protein solution)

d) a reaction buffer (see page 5, table I, here the 10x reaction buffer).

With regard to claims 14-15, 34, 35, Yamashita teaches an oligonucleotides that are approximately 22-24 nucleotides in length (see SEQ ID Nos: 1-3).

With regard to claims 16, 38, Yamashita teaches an oligonucleotide with a single 3' and 5' end (see SEQ ID NO: 1).

With regard to claims 17, 30, 37, Yamashita teaches the LacZ gene, which is linked to a promoter that can be expressed (see page 4, lines 15-25).

With regard to claims 31, 32, 39, 40, 41, Yamashita teaches the duplex DNA is a plasmid DNA (see page 4, lines 18-25).

Yamashita does not teach the use of a plant cell extract or the oligonucleotide of claim 29.

Baszcynski teaches a composition for gene correction comprising:

a) a duplex DNA (see column 14, lines 60-65).

b) an oligonucleotide (see column 14, lines 60-65).

c) a plant cell free extract (see column 14, lines 60-65).

d) a reaction buffer (see column 14, lines 60-65).

With regard to claims 14-15, 34,35, Baszcynski teaches an oligonucleotide that is approximately 90 nucleotides in length (see SEQ ID NO: 2).

With regard to claim 16, 36, Baszcynski teaches an oligonucleotide with a single 3' and 5' end (see SEQ ID NO: 2).

With regard to claims 17, 30, 37, 39, 40, 41, Baszcynski teaches the double stranded DNA including the pPHPP10247 plasmid which comprises the AHAS gene under the control of the ubiquitin promoter (see column 11, lines 49-67).

With regard to claim 29, Baszcynski teaches a self complementary oligonucleotide with at least 5 bases that are base paired (see figure 7).

With regard to claim 33, 38, Baszcynski teaches the use of an oligonucleotide which comprises a "duplex" since the single oligonucleotide is taught to be capable of forming a duplex (see column 5, lines 17-24).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use a plant cell extract as taught by Baszcynski in the composition of Yamashita since Yamashita notes "Namely, proteins being similar to RecA but originating in other sources and variants thereof are usable herein (see page

3, lines 5-7)." Yamashita further recognizes the equivalence of plants and other cell types, noting that host cells can include "bacteria such as Escherichia coli and Bacillus subtilis, yeasts, fungi, plant cells and animal cells (see page 3, line 21)." Therefore an ordinary practitioner would have been motivated by Yamashita to use other cell free extracts from sources which would function in gene correction, including equivalent extracts from plants. Baszcynski motivates the use of plant extracts since Baszcynski teaches that "Compositions and methods for targeted gene correction, conversion, or modification in plants are provided (see column 4, lines 66-67)." So an ordinary practitioner would have been motivated by Baszcynski to use plants for the modification since Baszcynski teaches in vitro plant cell extracts (see column 60) and wants to gene correct plants (see abstract), while Yamashita recognizes the equivalence and use of other cell free extracts.

A further motivation is that of substituting equivalents, where the plant cell free extract is an equivalent, since Yamashita recognizes the equivalence of the different host cell types, as MPEP 2144.06 notes " Substituting equivalents known for the same purpose. In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout , 675 F.2d 297, 213 USPQ 532 (CCPA 1982)."

Further, an ordinary practitioner would have been further motivated to use oligonucleotides with self base pairing since Baszcynski notes that these oligonucleotides are resistant to nuclease digestion and present no impediment to pairing with the target, thereby improving the sensitivity and specificity of the assay (see column 5, lines 31-38).

The ordinary practitioner would have had a reasonable expectation of success given that Baszcynski demonstrated that in vivo gene correction in plants functioned (see column 20) and since Yamashita demonstrated successful in vitro gene correction (see example 3).

Response to Arguments

4. Applicant's arguments filed July 18, 2005 have been fully considered but they are not persuasive.

Applicant argues that the claims differ from the prior art in the use of either "single stranded oligonucleotides" or "duplex DNA oligonucleotides" either of which are different than the "chimeric oligonucleotides" of Basczynski. This argument is not correct because the "chimeric oligonucleotide" represent a type of "single stranded oligonucleotide" (see column 5, lines 17-20 of Basczynski, which notes "The chimeric oligonucleotides of the invention consist of a single-stranded nucleic acid designed to form a duplex structure that is capped by single-stranded loops.") So Basczynski clearly notes that the chimeric oligonucleotide is a "single stranded nucleic acid" which is identical to a "single stranded oligonucleotide". Basczynski further notes that the "chimeric oligonucleotide", which is composed of one strand, is designed to form a

duplex, meeting the limitation of claim 33. Consequently, the oligonucleotides of Basczynski not only do not teach away from the claimed invention, as Applicant would argue, but precisely fall within the scope of the claimed invention. To make this particularly clear, Basczynski shows the oligonucleotide in figure 12, for example, where panel (a) shows that the oligonucleotide is "single stranded" and panel (b) shows the formation in its active state as a duplex. This teaching of Basczynski meets the claimed elements.

With regard to the degradation argument, Basczynski expressly teaches the use of chimeric oligonucleotides to resist this degradation and enhance correction. This provides further motivation to combine the references.

Applicant argues that when Basczynski uses a chimeric RNA/DNA oligonucleotide, this teaches away from the use of solely DNA. This argument is not relevant to the claims, which lack any requirement that the oligonucleotide be composed solely of DNA. The claim states "said oligonucleotide comprises a DNA duplex". The use of the open "comprising" language permits the presence of other elements, including the RNA of Basczynski.

For these reasons, the rejections are maintained.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Fredman whose telephone number is (571)272-0742. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571)272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey Fredman

JEFFREY FREDMAN
PRIMARY EXAMINER
8/17/05